CLAIMS

1. A moving magnet type linear actuator comprising:

an armature part on a stator side,

a field magnet part on a mover side, and

an encoder which detects a position in a slide direction of the mover in relation to the stator, wherein

the stator includes: a stator base, an armature part which is fixed onto the stator base and has plural coils, and linear guide rails arranged linearly so as to sandwich both sides of the armature part;

the mover includes: a field magnet part provided with a field permanent magnet which is arranged so as to be opposed to the armature part through an air gap and is held by a nonmagnetic magnet holder and with a magnetic back yoke which is arranged at the back of the filed permanent magnet through an air gap and fixed to the stator base at both ends thereof; and a linear guide block provided so as to slide on the linear guide rail; and

the encoder is an optical encoder including: an optical linear scale arranged on a side surface of the magnet holder, and a sensor for detecting the linear scale, which is arranged opposed to the linear scale and on the stator base side.

2. The moving magnet type linear actuator according to Claim 1, wherein

the magnetic back yoke is formed of a thin plate-shaped laminated electromagnetic steel plate.

3. The moving magnet type linear actuator according to Claim 1, wherein

the stator is provided with a core buried in the stator base so as to be opposed to the armature part, and is formed by laminating thin-plate shaped electromagnetic steel plates in a direction perpendicular to the moving direction of the mover.

4. The moving magnet type linear actuator according to any one of Claims 1 or 3, wherein

a refrigerant conduit tube or a jacket for forced liquid-cooling is buried in the stator base.